Traumatic Stress

From Theory to Practice

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Accidental Injury

Approaches to Assessment and Treatment

CONNIE L. BEST and DAVID P. RIBBE

INTRODUCTION

In an earlier chapter in this volume (Chapter 8), Scotti and colleagues offered a definition of accidental injury as those unintentional injuries caused by human error, technological disasters, or other unforeseen circumstances. Included in this definition are motor vehicle accidents, airplane crashes, train derailments, and other types of transportation accidents. Industrial accidents and construction failures are also frequently categorized as accidental injury. Falls, drownings, fires, and other home accidents often result in injuries that would be classified similarly. Citing figures from the Rice, MacKenzie, and associates' 1989 Report to Congress, Chapter 8 states that the total lifetime costs for accidental injuries are greater than all other leading causes of death (e.g., heart disease, cancer), when medical, disability, and lost work productivity costs are included. However, as Scotti and colleagues point out, those figures "do not specifically address the short and long term [sic] psychological sequelae of accidental injury." In their thoughtful and comprehensive chapter, Scotti and colleagues have addressed the psychological impact of accidental injury and the development of accident-related psychological trauma.

In this chapter we focus on the assessment and treatment of accident-related psychological trauma. The chapter begins with two case examples that we believe typify accidental injury victims and illustrate some of the specific concerns that these patient victims may have. Next, we provide a description of

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a variety of measures and interview schedules that have been found to be helpful when assessing psychological aspects of accident-related trauma. Although we attempt to present a comprehensive list of self-report measures, trauma history instruments, structured interviews, and psychophysiological methods, the assessment battery can easily be tailored for each accidental injury patient depending on the needs of the patient and the clinical picture. In this chapter we also attempt to outline an approach to treatment for accident-related trauma. Although we recognize that accident-related trauma can include a broad range of emotional responses and is not restricted to posttraumatic stress disorder (PTSD), the majority of the treatment interventions presented do address PTSD or PTSD-like symptoms, since these symptoms may be the most problematic for patients (APA, 1994). Embracing a tripartite model of anxiety that posits that a person may experience anxiety in the physical, cognitive, or behavioral channels, we utilize a cognitive–behavioral framework for treatment interventions. Specific interventions are offered to address symptoms that may be experienced in each of these channels. The chapter concludes with a discussion of special issues regarding assessment and treatment of this patient population. This chapter is primarily intended for use of clinicians who provide direct psychological services or for those professionals who provide consultation for multidisciplinary treatment teams that treat accidental injury patients.

The first author (CLB) of this chapter is a clinical psychologist who specializes in the assessment and treatment of psychological trauma. As the psychologist on the consultation/liaison service of a large tertiary hospital for 8 years, she has gained considerable experience providing clinical services to patients who have suffered from a variety of accidental injuries. She obtained one of the first federal research grants specifically designed to identify, assess, and treat seriously injured victims admitted to the surgical and trauma units of the hospital. Recognized for her expertise in the area of trauma, she is a frequent presenter at scientific meetings and conducts treatment workshops throughout the country. The second author (DPR) is a clinical psychologist whose clinical and research interests are in the areas of traumatic stress and disaster. As part of his professional background, he has worked with the victims of residential fires as well as with victims surviving a traumatic bus crash. He has also published and presented at professional conferences. Thus, the comments in the current chapter are informed by the rich professional background of both authors.

Case 1

Thomas was a 23-year-old male who had been in a serious motor vehicle accident with his family approximately 6 months prior to seeking treatment. While he was driving his mother-in-law's car, a tire blew, sending the car sliding onto the shoulder of the road. He tried to steer the car into a field, but skidded into a tractor trailer truck that was illegally parked on the shoulder of the road. His wife, 4-month old daughter, and mother-in-law, who were in the back seat were severely injured. All three passengers eventually died. Thomas and his wife's uncle, who were riding in the front seat, were only slightly injured. His

10-year-old nephew, who was sitting in the middle of the front seat, sustained serious head injuries. The nephew was expected to remain in a cognitive rehabilitation facility for the rest of his life.

Thomas lost consciousness for a few minutes in the ambulance but was fully alert in the emergency room where he could hear the medical personnel as they had frantically worked on his wife in the bed next to him. He could vividly describe the sounds and recount verbatim conversations occurring on the other side of the curtain that separated him from his wife. He presented for treatment with symptoms of PTSD and uncomplicated bereavement (APA, 1987, 1994). Surprisingly, his degree of grief was not at a level associated with full depressive syndrome: PTSD symptoms of psychological numbing and avoidance were the most prominent. He was also troubled by intrusive recollections of the sounds he had heard his wife make in the car immediately following the impact and those of the medical team as they assisted his wife in the emergency room.

Case 2

Robert was a man in his late 40s who initially was seen in the burn unit of a major medical university hospital with second- and third-degree burns covering 40% of his body. He had sustained the burns as the result of an unusual accident in which he and a friend were standing in his yard talking when a military jet from a nearby base developed engine trouble. As the plane flew overhead, Robert realized that the plane was in trouble only seconds before it crashed. He yelled to warn his friend and then jumped over a large barrel in which he had been collecting rainwater for his vegetable garden. As he jumped over the barrel for protection, the force from the crash caused the barrel to tip over, covering him with water at the moment that the flash of fire from the exploding jet fuel enveloped him. Robert certainly would have sustained even more severe burns over a greater extent of his body if it were not for being covered by the rainwater. His friend was not so fortunate. On his second day in the hospital, Robert was informed that his friend had died.

From the first day of admission to the hospital, Robert described symptoms of PTSD. He particularly was troubled by intrusive images and other intrusive sensory reexperiencing (i.e., smelling jet fuel, smelling burning flesh, and hearing the sounds of the engine sputtering). These symptoms persisted past the 1-month time frame required for a diagnosis of PTSD (APA, 1987, 1994). He also had some symptoms associated with depression but did not warrant a diagnosis of major depression.

ASSESSMENT

Overview

Until recently, comprehensive assessments of accident-related trauma were not found in the research literature. The studies that do appear in the litera-

ture have focused primarily on preexisting psychopathology in the accident victim (Malt, Myhrer, Bilkra, and Hoivik, 1987), pain associated with the accidental physical injury (Alcock, 1986), or examined only one type of accidental injury (Roca, Spence, & Munster, 1992). Much of what is known regarding a comprehensive posttrauma assessment comes from the combat or crime-related trauma literature. Published studies in those areas describe assessment of posttrauma symptoms and functioning that is multimethod, drawing from both self-report and collateral sources of information. Drawing on these literatures, we suggest that assessment measures range from taking trauma histories, to structured interviews, to standardized PTSD questionnaires, to standardized assessment of comorbid disorders such as depression or panic disorder, and, finally, to psychophysiological reactivity to trauma-related stimuli (in settings where this latter approach is feasible).

The assessment process and the number of instruments used may vary depending on the characteristics of each patient (e.g., the patient's reading level, the patient's ability to attend and concentrate, the patient's physical condition) and other constraints on therapy (e.g., patient will be moving from the area within a few weeks, lack of psychophysiological assessment equipment). However, whenever possible, the therapist should attempt to include a range of assessment procedures. The order of presentation is also important. The assessment process should flow from the more unstructured description of the accident (telling of the story), to an assessment of other traumatic events, followed by an assessment of PTSD and comorbid symptoms, and ending with psychophysiological assessment (if the latter is practical). Finally, the assessment process may be completed in one, lengthy session or accomplished in two or more shorter sessions depending on the needs of the patient and other practical considerations. The clinician may find the following instruments and measures helpful for the assessment of accident-related trauma.

Telling Their Story

A great deal of clinically useful information can be obtained by having the patient describe what happened just prior to, during, and immediately after the accident, how things are different for him or her since the trauma, and how he or she has been affected by it. Clinical experience indicates that greater fullness of detail and affective information are available when the patient first tells his or her story in an unstructured manner. Not only does the clinician receive content-specific information necessary for developing individualized treatment plans, but such patient narrative also gives an indication of the patient's particular style in attempting to cope with the trauma. For example, very detailed and precise accounts may indicate obsessive or intrusive symptomatology. Scattered and disorganized accounts may reflect impaired concentration caused by anxiety. If accounts provide only minimal details, it may suggest a tendency to use cognitive avoidance strategies as methods to reduce anxiety.

In addition to assisting in the diagnostic process, allowing the patient to tell his or her story can have tremendous therapeutic benefits. First, the process of telling the story may have a cathartic effect for the patient. Second, it also communicates to the patient that the therapist views him or her as an individual and wants to understand his or her unique experience. Third, in contrast to what may have been the reaction and the message received from other people, the process communicates to the patient that it is really "okay" to talk about what may have been a horrific event and the intense emotional response that resulted from the experience. Having the patient tell his or her story would best be accomplished during the first session and prior to completing the rest of the assessment process.

Potential Stressful Events Interview

This interview procedure was developed as part of the *Diagnostic and Statistical Manual,* Fourth Edition (DSM-IV) PTSD field trials (Kilpatrick, Resnick, & Freedy, 1991; Falsetti, Resnick, Kilpatrick, & Freedy, 1994). The Potential Stressful Events Interview (PSEI) assesses a comprehensive range of potentially stressful events (both traumatic and nontraumatic). The PSEI consists of five parts. Demographics, which are covered in the first part, are fairly straightforward. Part two assesses for low-magnitude stressors that may have occurred in the past year (i.e., job loss, marital difficulties, or serious illness). The third section assesses for lifetime incidence of high magnitude (traumatic) stressors, which are those stressors that are typically associated with increased risk for developing PTSD (APA, 1987, 1994). The last two sections assess both the objective and subjective characteristics of the first, worst, or most recent of the high-magnitude stressors. Objective characteristics would include injury and attributions about causal factors. The subjective characteristics are self-report factors that measure emotional (e.g., fearful or scared, emotionally numb, confused/disoriented) and physical (rapid heart rate, trembling or shaking, chest pain or discomfort) responses that are recalled from the time of the event. Because it may have a direct bearing on the therapeutic process, it is important before beginning therapy for a clinician to understand all types of potentially stressful events a patient may have experienced. The PSEI, therefore, may be an important instrument for the clinician. Because of the comprehensive nature of this instrument, it is especially well-suited for research purposes.

Trauma Assessment for Adults

The Trauma Assessment for Adults (TAA) was developed from the PSEI (see above) (Resnick, Best, Freedy, & Kilpatrick, 1993). The TAA is considerably shorter in length and may have more utility for most clinical practice settings. Like the PSEI, the TAA measures a broad range of traumatic events and the occurrence of multiple potential traumatic events across the life span. The need to obtain a trauma history for events other than the one for which the

patient is seeking treatment was one that was recognized by the developers of the instrument based on their clinical experience. It was felt that a history of other stressful events might effect the complexity, length, or course of therapy. Therefore, if the clinician were aware of the other stressful or traumatic events, modifications or adjustments could be made earlier in the therapeutic process. Additionally, patients often report a resurgence of symptoms associated with previous stressful events after they experienced the stressor or accident for which they were seeking treatment. Obtaining a trauma history would allow the clinician to prepare the patient for this possibility. The authors of the TAA believe that this instrument or similar instruments are quite useful clinically and will see wide-spread use in a variety of clinical settings in the future.

NIMH Diagnostic Interview Schedule, Version III

The Diagnostic Interview Schedule (DIS) is a structured diagnostic interview designed as a psychiatric epidemiologic survey instrument intended to identify DSM-III-R psychiatric symptoms and make psychiatric diagnoses in adults (Robins, Helzer, Croughan, & Ratcliff, 1981; Robins, Helzer, Cottler, & Goldring, 1988; Resnick, Falsetti, Kilpatrick, & Freedy, in press). The DIS generates information about the intensity and duration, as well as the incidence, of psychiatric symptoms. The majority of the questions can be answered "yes" or "no," with "yes" indicating a positive symptom. Clinical assessment of accident victims may include the PTSD Module of the DIS. In this section, questions about the three types of clusters of PTSD symptoms are included: (1) intrusive reexperiencing phenomena (e.g., flashbacks, intrusive images); (2) avoidance behaviors or emotional numbing symptoms; and (3) symptoms of increased arousal. Additional questions assess whether the symptoms persisted for at least 1 month following the trauma. Symptoms of both lifetime and current PTSD are assessed.

Clinician Administered PTSD Scale

The CAPS-1 is a 30-item structured interview that bases its clinician ratings on specific behavioral descriptions of symptoms (Blake et al., 1990). It includes items that assess each of the PTSD symptoms defined by the DSM-III-R (APA, 1987). The CAPS-1 also includes eight items that assess associated features of PTSD in adults (e.g., survivor guilt, feelings of hopelessness, feelings of being overwhelmed, disillusionment with authority figures). A particular advantage of the CAPS-1 over other structured PTSD interviews such as the DIS, is the inclusion of separate frequency- and intensity-rating scales for each symptom. Frequency and intensity ratings are made on a 5-point continuum (where 0 would represent the lowest frequency and intensity, and 4 would represent the greatest frequency and intensity). Thus, the CAPS-1 can be used either as a dichotomous measure for making a DSM-III-R diagnosis of PTSD, or as a continuous measure for assessing lifetime or current (within the past month)

severity of symptoms. Additional items assess the impact of PTSD symptoms on social and occupational functioning, global PTSD symptom severity, global changes in symptoms, the validity of the interviewee's responses. Excellent interrater reliability has been obtained on the frequency and intensity for each PTSD symptom group (criteria B, C, and D), with Pearson's correlation coefficients ranging from .92 to .99 for frequency ratings and greater than .98 for intensity ratings (Blake et al., 1990).

Impact of Event Scale

The Impact of Event Scale (IES) is a 15-item, self-report questionnaire designed to provide a cross-sectional picture of subjective psychological responses to a stressful life event (Horowitz, Wilner, & Alvarez, 1979; Zilberg, Weiss, & Horowitz, 1982). The IES measures the frequency of symptoms occurring within 7 days of administration. By asking the patient how true the items are for them, responses are indicated on a 4-point scale ranging from "not at all" (scored 0), "rarely" (scored 1), "sometimes" (scored 3), and "often" (scored 5). The IES yields three scores: an Intrusion subscale score (e.g., "I thought about it when I didn't mean to"; "Pictures about it popped into my mind"; "Other things kept making me think about it"); an Avoidance subscale score (e.g., "I tried not to talk about it"; "I stayed away from reminders of it"; "I tried not to think about it"); and a Total score. Due to the brevity of the test and the correlation of the subscales with symptoms of PTSD, the IES can be quite useful with accident victims for the initial assessment and also for monitoring PTSD symptoms throughout the course of treatment.

Symptoms Checklist-90-Revised

The Symptoms Checklist-90-Revised (SCL-90-R) is a 90-item, self-report inventory that assesses levels of psychological symptoms within 1 week of administration (Derogatis, 1977, 1983). Each item describes a psychological symptom. Items are rated on a 5-point scale ranging from "no discomfort" (scored 0) to "extreme discomfort" (scored 4) experienced within the past week. Nine primary factor scores can be determined: (1) somatization; (2) obsessive–compulsive; (3) interpersonal sensitivity; (4) depression; (5) anxiety; (6) hostility; (7) phobic anxiety; (8) paranoid ideation; and (9) psychoticism. Three additional measures of general psychological distress are: (1) global severity index; (2) positive symptom distress index; and (3) positive symptom total.

Based on the SCL-90-R, Saunders, Mandoki, and Kilpatrick (1990) developed a 28-item PTSD scale that successfully discriminated women who had PTSD resulting from crime-related violence from those who did not have PTSD. Findings from a second sample essentially replicated the utility of the 28-item PTSD scale in predicting the presence of PTSD in women who had previously experienced a violent crime (Arata, Saunders, & Kilpatrick, 1991). Although this scale appears to be a useful screening instrument for use with adult female crime

victims, the utility of the scale has not been empirically examined with other populations (e.g., males, victims of other traumatic events). In clinical practice, it has been noted that elevated scores are typically reported by the victims of traumatic accidents. Higher scores on the SCL-PTSD scale and other SCL-90-R scales are indicative of more intense levels of psychological distress. It should be noted that, in every case, the SCL-PTSD scale should be administered only as part of the SCL-90-R given as a whole; it is not a stand-alone instrument. Also, this approach to assessment is a screening measure and should be supplemented with other questionnaires and interview-based information.

Beck Depression Inventory

The Beck Depression Inventory (BDI) is a 21-item, self-report instrument designed to assess the intensity of depressive symptoms and attitudes within the past week (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961; Beck, Rush, Shaw, & Emery, 1979; Beck & Steer, 1984). The items can be rated from 0 to 3 in terms of intensity. Total scores between 0 and 10 are associated with no or minimal depression; between 11 and 17, mild to moderate depression; 18 to 24, moderate depression; and 30 to 63, severe depression. The coefficient alpha of the BDI is .87, and its test–retest reliability correlations are within the .80s. The BDI may be particularly useful with accident victims, as depressive symptomatology is often a clinical issue with them. Like other brief, self-report inventories, the BDI can be administered several times during the course of therapy to monitor the progress of symptoms over time.

Psychophysiological Assessment

One of the three symptom clusters of PTSD defined by the DSM-III-R and DSM IV is increased arousal (APA 1987, 1994). An effective means of assessing increased arousal among trauma victims is psychophysiological responsiveness to stimuli associated with the trauma. Combat veterans with PTSD have demonstrated robust physiological reactivity (e.g., increased heart rate and blood pressure, increased muscle tension, and changes in electrodermal activity) upon exposure to combat-related stimuli (Blanchard, Kolb, Gerardi, Ryan, & Pallmeyer, 1986; Malloy, Fairbank, & Keane, 1983; Pittman, et al., 1990).

Recently, psychophysiological reactivity has been studied among individuals who have PTSD secondary to motor vehicle accidents (MVAs) (Blanchard, Hickling, & Taylor, 1991; McCaffery & Fairbank, 1985; Ribbe & Jones, 1993). Although results are based on small samples, increased heart rate upon exposure to personalized scripts of the accident appears to be closely associated with PTSD among accident victims. High levels of physiological reactivity may persist from 6 months to 4 years after a traumatic accident (Ribbe & Jones, 1993).

Although psychophysiological assessment may provide valuable information for the treatment of accident victims that cannot be assessed by self-report measures, and its use is strongly encouraged, it does require sophisticated

equipment and specialized training. Therefore, this type of assessment may not be practical for most clinical office settings, but it is well suited for research settings or some specialized clinical settings.

TREATMENT

Overview

The goals of this section of the chapter are three-fold: (1) to provide a theoretical overview for treatment, (2) to describe several therapeutic techniques for the treatment of accident-related trauma, and (3) to address several issues related to the treatment of accident victims.

Traumatic accidents may produce several psychological responses among individuals ranging from mild distress to extreme stress reactions, or anything along the continuum. If the accident was minor in nature and the level of distress determined by clinical interview and standardized assessment procedures such as those described above is low, the individual may not require any therapeutic intervention. In some cases, the simple provision of information, advice, and reassurance is sufficient. However, if the accident was more serious, or if the level of psychological distress is high, the victim may be in need of treatment. For treatment seekers, PTSD is probably the most common diagnosis (APA, 1987, 1994). Therefore, PTSD is the primary focus of the treatment section of this chapter.

It is helpful to think of many of the primary posttraumatic symptoms as predictable reactions to a fear-producing situation. Accident victims, like the victims of other traumatic events, may react to situations that remind them of the trauma with a fear response. The fear response will be manifested on three levels: physical, cognitive, and behavioral (Lang, 1968, 1979).

Physical reactions such as increases in heart rate, blood pressure, respiration rate, and muscle tension are automatic. Such reactions are considered an adaptive part of the "fight or flight" response when an individual perceives threat or danger. However, in the traumatized accident victim, these responses occur repeatedly when the victim is exposed to reminders of the threatening situation. The physical fear response may become maladaptive when it interferes with the individual's ability to function in day-to-day activities when no objective threat is present.

The fear response is also reflected in victims' cognitions. Thoughts about the accident may trigger other aspects of the fear response. Following a traumatic accident, victims may experience unwanted images or thoughts about the accident. These images or thoughts may persist despite the victim's efforts to stop them. The intrusive nature of these cognitions may cause concentration difficulties and lead victims to feel that they have little control in their lives. Sometimes, intrusive thoughts take the form of nightmares about the accident or night terrors, which leave the victim awake in a state of fear with no recall of the content of the dream.

After an accident, victims may respond to the physical and cognitive fear responses on a behavioral level, too. They attempt to control further exposure to situations that evoke fear-producing physical reactions and cognitions by avoiding situations that remind them of the accident. Victims may go to great lengths to avoid people, places, things, or situations that are associated with the trauma. It is important to note that trauma victims do not always recognize that they have developed patterns of avoidance because of the trauma. Often, the avoidance patterns become a routine part of life for victims. Thus, the clinician needs to assess when the avoidance behaviors began relative to the time of the accident. Avoidance that begins following an accident is probably a manifestation of adjustment to the accident.

Sometimes the physical, cognitive, and behavioral fear responses occur separately. Most frequently, however, the three levels of fear response occur simultaneously, or interact with one another. For example, having thoughts about the accident may trigger physical reactions, which, in turn, may lead to avoidance behaviors, which limit further exposure to fear-producing situations. However, avoidance behavior also prevents the individual from learning that feared people, places, or situations are objectively safe. Thus, physical, cognitive, and behavioral manifestations of anxiety may become self-sustaining.

Effective treatment focuses on each of the three levels of the fear response. A combination of relaxation procedures (e.g., Jacobsonian deep-muscle relaxation, controlled breathing), cognitive interventions (e.g., thought-stopping, activation–belief–consequences [ABC] training, rational emotive therapy [RET]), and behavioral techniques (role playing, exposure therapy, stress inoculation therapy) can be used to target the physical, cognitive, and behavioral aspects of the fear response.

In general, a cognitive–behavioral approach may be the treatment of choice for accident-related trauma. The following is a description of several of the cognitive–behavioral techniques that clinicians may find useful. The techniques are complimentary to Lang's tripartite model and are organized by the authors of this chapter to address each of the three channels of fear and anxiety.

Physical Treatment Techniques

Deep Muscle Relaxation

Some of the most effective techniques for reducing trauma-related anxiety in accident victims are those that train clients to engage in responses that are incompatible with fear responses. For instance, deep muscle relaxation techniques *can* produce a sense of calm and control that the client can employ when the accident victim begins to feel fearful or anxious. Jacobson (1938) deep muscle relaxation, which is described in clear and step-by-step fashion by Rimm and Masters (1979), involves tensing, holding, and releasing major muscle groups in a progressive manner, usually from head to toes. Patients are able to relax specific muscle groups that may be tense as a result of anxiety, and thereby causing pain or discomfort. Not only is this technique useful for indi-

vidual muscle groups, but the resulting calm can become an automatic response after several practice sessions. The client can begin to experience relief of fear and anxiety relatively quickly after learning relaxation techniques. They then can become relaxed enough to think more clearly and to exercise control over their physical and emotional responses.

Deep muscle relaxation can be used in a systematic desensitization paradigm as well. This technique requires that the accident victim and the therapist construct a hierarchy of fear-producing stimuli (images, thoughts, sounds, situations) that progresses from those that are slightly distressing to those that are highly distressing. While in a state of relaxation induced through progressive muscle tensing and releasing, the accident victim is presented with stimuli at the least distressing end of the hierarchy. As the patient's anxiety reaches a level that is distressing, the patient then engages in his or her relaxation response until he or she feels calmer or more relaxed.

On a scale of 1 to 10 with higher scores representing extreme distress, the patient should continue to use the relaxation exercises until he or she is able to reduce his or her level of anxiety to a level equal to a 1 or 2. Once relaxed, the patient is then presented with the next scene in the hierarchy, and the process is repeated. Over several sessions, stimuli of increasing distress value are presented to the client. With time, the repeated pairing of a state of relaxation with distressing stimuli leads to a reduction in fear and anxiety in the presence of those stimuli. The patient eventually achieves a sense of mastery over the feared scenes. Thus, accident victims can learn to engage the relaxation response as a coping mechanism when confronted with stimuli or situations that arouse fear or anxiety (e.g., driving in a car, having a medical examination, flying in an airplane).

Cue-Controlled Breathing

Another useful technique for relaxation is cue-controlled breathing (Rimm & Masters, 1979). This technique involves having the patient take a deep breath, then exhale while saying aloud or silently to him- or herself words such as "calm," "relax," or "peaceful." This procedure generally serves to slow down the individual's rate of breathing, which typically becomes rapid and shallow during periods of stress. When taught and practiced repeatedly when the patient is already in a relaxed state (i.e., at the end of other relaxation exercises such as deep muscle relaxation), the patient can achieve significant levels of physical relaxation. Additional benefits of cue-controlled breathing are that it is easily mastered by patients, it is an abbreviated method of achieving relaxation compared to other more lengthy methods, and that it can be done discreetly virtually anywhere and at anytime the patient needs to reduce feelings of anxiety.

Pleasant Imagery

With pleasant imagery, as the name suggests, the patient tries to call to his or her mind's eye a pleasant scene. To ensure that the image is relaxing and free of associated stressful or unpleasant connotations, the patient (not the

therapist), should choose the scene to be imagined. Richness in detail is best. Multiple sensory modalities (visual, auditory, kinesthetic, olfactory) should be included to maximize the relaxation response. Therefore, the therapist should have the patient provide as much detail as possible when describing the scene. For example, if the patient chooses a relaxing beach scene, the person should also be encouraged to describe how his or her skin feels with the warmth of the sun, the smell of the salt in the air, and the sounds of the waves and the seagulls. As with cue-controlled breathing, pairing the use of pleasant imagery with deep muscle relaxation may facilitate a relaxation response via classical conditioning principles.

Cognitive Treatment Techniques

Accident victims often develop distorted perceptions of the accident and of the consequences of the accident. They may develop complex belief systems about the conditions, real or imagined, that led to the accident, complicated it, or led to a less desirable outcome. Such cognitions may compound the distress that the accident victim experiences. In fact, when accident victims begin to act on misinterpretations and distorted beliefs, they may inadvertently be creating more difficulties in their physical and social environment, which further impair functioning. The goal of cognitive treatment techniques, then, is to limit and correct faulty thinking about the accidents, behaviors, and consequences of the accident.

Rational Emotive Therapy

First described by Ellis in the 1960s and refined during the 70s, RET is derived from a theory that assumes that emotional distress results from faulty or irrational patterns of thinking. An A–B–C paradigm is used to explain the theory, where A is the activation experience (real event), B stands for the person's belief system (thoughts) about the event, and C describes the emotional consequences (e.g., anxiety, depression, anger) related to the event. According to Ellis (1974), it is not the event itself that produces an emotional consequence, rather it is the person's belief system or thoughts that determine their emotions. Irrational thoughts are either empirically false or cannot be verified and have self-defeating consequences. The goal of RET is to help the patient to change or modify his or her belief systems, thereby modifying his or her feelings. In the case of Robert, some of the concurrent depression he suffered was related to his belief that his friend might have survived had he pulled him over the rain barrel. Helping Robert to challenge this belief, that there was actually a low probability that he would have been able to actually save his friend in light of the instantaneous circumstances of the accident, was an effective way to modify his beliefs and to reduce his feelings of self-blame and depression.

Cognitive Restructuring

Cognitive restructuring, a term popularized by Lazarus (1971), refers to a more general concept of cognitive therapy. Similar to RET, the goal of cogni-

tive restructuring is to discover the source of faulty beliefs or misinterpretations and to substitute those with other beliefs or ideas. In essence, it is a way to think differently, and perhaps less negatively, about a situation. It is a way for the patient to change his or her perceptions of the situation to more adaptive ones. For example, in the case of Thomas, the patient initially had a great deal of distress when he thought of the prospect of spending evenings alone. He worried that he would begin thinking of his family and would be so consumed with grief that he could not function. During therapy, a cognitive restructuring approach was used to help him "reframe" his concept of "evening hours" from one of dread to one of time to think about his tasks for the future (e.g., returning to school and purchasing his new business). Obviously, the horrific circumstances of many traumatic events limit the degree to which cognitive restructuring can occur, but every effort should be made to utilize this type of therapy in order to mitigate the degree of the depression or anxiety experienced by the patient while at the same time demonstrate an appreciation for the results of the accident.

Stress Inoculation Training

One other therapy which has been found to be quite effective in the treatment of trauma is that of stress inoculation training (SIT). Developed by Meichenbaum (1977), SIT is designed to help patients cope with anxiety by enhancing their self-control skills. It consists of three stages. The first is the Educational Stage in which the patient is provided with the conceptual framework that maladaptive thoughts or beliefs produce aversive emotional states and that self-statements play a critical role in such states. The second stage is the Coping Skills stage in which patients are taught specific coping skills. Stressful situations are conceptualized as having four sequential phases: (1) preparing for a stressor, (2) confronting a stressor, (3) coping with the fear of being overwhelmed by a stressor, and (4) the reinforcement phase after dealing with a stressor. Patients are taught to modify their self-statements or beliefs associated with each of these phases. During the third stage (the Application Stage), homework assignments are given to patients to practice in a covert or overt form the skills learned during the Coping Skills Stage.

Veronen and Kilpatrick (1983) and Best, Amick, Veronen, and Kilpatrick (1987) drawing on the specific model of Lang (1968), modified SIT for use with sexual assault victims. By adding the notion that anxiety can be experienced and manifested in three channels (physical, cognitive, or behavioral) to the SIT paradigm, patients are taught specific techniques or skills to address symptoms in each of these channels and given homework assignments to practice their newly acquired skills. Foa and colleagues compared SIT with the in vivo component, with prolonged exposure therapy (PE) and supporting counseling (SC) for recent rape victims (Foa, Olasov-Rothbaum, Riggs, & Murdock, 1991). They found SIT to be the most effective therapy at the end of treatment, but PE produced superior outcome on PTSD symptoms at 3-month follow-up. It should be emphasized that SIT used by Foa was not the modified version as

used by Veronen and Kilpatrick or Best and colleagues, since it did not include the in vivo practice exposure component.

The first author has employed SIT with a variety of accident patients in inpatient and outpatient clinical settings and believes that the modified SIT can be generalized to this patient population. In the case of Thomas, a modified SIT package was developed to help him prepare for a civil trial stemming from the auto accident. Initially, he was unable to prepare for court because of his extreme level of PTSD symptoms. However, the SIT model broke the large, anxiety-provoking task (going to court) into smaller, more manageable parts (preparing for court, giving direct testimony, being cross-examined). By doing so, Thomas was then less anxious, able to design a plan of action to accomplish each of the smaller tasks, and accomplished each of the smaller tasks; thereby he accomplished the complete task.

Thought-Stopping

Thought-stopping is a technique used to interrupt ruminative thinking (Wolpe, 1958). When used with accident victims, the therapist instructs the patient to think about the accident for a brief period. When the patient signals with a raised finger that he or she has a clear image, the therapist shouts, "Stop!" The patient should then be queried to see if the thoughts are continuing. If so, the procedure is repeated until the thoughts stop. The patient can then be trained to stop his or her own intrusive, distressing, or ruminative thoughts in this way, first overtly (aloud), then covertly (silently). Although not all patients find thought-stopping to be beneficial, for some patients, this technique provides great relief from intrusive PTSD symptomatology. In the case of Thomas (auto accident victim), thought-stopping was successfully used to interrupt intrusive thoughts, images, and sounds of the hospital emergency room.

Behavioral Treatment Techniques

Role Playing

Following an accident, victims may have some difficulties interacting with other people. Previously acquired interpersonal skills may have temporarily fallen out of their repertoire of behavior as a result of the stress of the accident. Role playing can be useful to help the victim deal with stressful interpersonal situations and to help victims engage in behaviors that are more adaptive (Masters, Burisch, Hollon, & Rimm, 1987).

One criticism of role playing that has been heard by the first author of this chapter in the course of providing treatment workshops on accident-related trauma to mental health professionals is that this technique is patronizing to the patient. However, this technique assumes only that the level of stress in the patient may be so great that it affects his or her ability to cope with certain specific situations. It does not assume that the patient is generally socially unskilled, only that the patient is temporarily unable to generate a behavioral response because of extreme levels of anxiety. In Robert's case (the plane crash),

role playing was quite beneficial. He was quite anxious at the thought of returning to his neighborhood, responding to questions about the accident, the loss of his friend, and the burns he received. Role playing helped him develop, in advance, responses for which he had previously felt ill-prepared or uncomfortable to make.

Role playing can uncover distorted cognitions or beliefs and reveal dysfunctional responses. A valuable variation of this technique is role reversal, where the therapist takes the role of the victims, and victim takes the role of other people in his or her sphere of functioning. Role reversal may help the victim discover his or her maladaptive beliefs about others' feelings and thoughts toward him or her.

Exposure Therapy

Exposure therapy is, perhaps, the most important element of successful treatment for patients with PTSD (Foa et al., 1991; Rothbaum & Foa, 1992, 1993). Consistent reexposure to reminders of the trauma allows the multifaceted fear response (physical arousal, intrusive cognitions, and behavioral avoidance) to extinguish in the absence of real danger. As the level of the fear response decreases, the victim can begin to feel, think, talk, and approach situations without feeling overwhelmed.

One type of exposure therapy is flooding (Lyons & Keane, 1989). Flooding can be produced imaginally without need for direct exposure to the actual traumatic situation. In therapy, exposure can be effected by encouraging the client to tell the story of the trauma. The therapist's task is to help the client to focus on many sensory details, thoughts, impressions, affective states, physical sensations at each part of the trauma. The therapist should have the client tell the story slowly, in minute detail, reporting every aspect of his or her experience including affective states and physical sensations. This part of therapy may be the most difficult for the therapist because the client's tendency is to try to escape or avoid confronting the traumatic memories. In order for extinction of the fear response to occur, the therapist must encourage the client to stay with the fear-producing memories to the point that he or she reaches a level of emotional arousal similar to that experienced during the traumatic accident. Attempts by the client to escape or avoid this level of distress must be prevented until he or she begins to show signs of calming down. Premature escape from fear-eliciting cues may unintentionally serve to reinforce the power of such cues to induce debilitating levels of fear. The most intense period of exposure may take several minutes. The entire exposure procedure (beginning, middle, and end) may take as long as 30 to 45 minutes.

Another type of exposure therapy is called gradual exposure (Masters, Burisch, Hollon, & Rimm, 1987). Unlike flooding where the process of therapy requires the patient to remain exposed (imaginal or in vivo), to the feared situation or thought until extinction can occur, gradual exposure is based on an anxiety-reduction model to address avoidance symptoms. A patient who is anxious and avoidant about returning to full-time employment at the same site

of the industrial accident, would be encouraged to do so gradually. For example, the patient and therapist might develop a plan for the patient to initially begin work on a part-time basis, perhaps at a different part of the plant or on another shift, until he or she becomes more comfortable being in the feared environment. A slow but gradual return to preaccident functioning is the goal of therapy.

Integration of Treatment Procedures

As with any trauma, the length of treatment, order of treatment technique presentation, involvement of family members, and treatment format (i.e., individual vs. group format) will vary depending on the particular patient, the injuries received, and other practical constraints. Some patients may have the luxury of an unlimited number of sessions based on their insurance plan, whereas others are not so fortunate. For the former group, the therapist would want to teach treatment interventions for use in all three channels (physical, behavioral, and cognitive). For the latter group, however, the therapist must prioritized the treatment sessions to address those symptoms that are the most problematic for the patient. As will be discussed, those patients with very severe injuries and perceived life threat may require the most number of sessions. Therefore, length of therapy may vary from just a few sessions to weekly sessions lasting months. However, even with a limited number of sessions, the patient may benefit significantly from therapeutic interventions.

The order of therapy may also vary depending on the needs of the individual patient. However, the authors suggest that as a general rule of thumb therapeutic techniques should address symptoms in the physical channel first, followed by the cognitive channel, and then the behavioral channel. Therapists should begin with relaxation techniques that might provide some degree of immediate relief and increase the likelihood that the patient will continue with therapy. Exposure-based techniques designed for the behavioral channel may be more anxiety provoking and should be attempted later. Of course, the entire process should begin with an educational phase that includes goal setting and explanation of the therapy process, and it should conclude with an evaluation of therapeutic progress.

To our knowledge, no controlled treatment outcome studies exist comparing individual and group treatment for accident victims. This is clearly an area for future research. However, the clinician who treats accident victims may want to consider encouraging patients to join victim support groups as an adjunct to therapy. There are many national reputable groups (e.g., Mothers Against Drunk Driving, the Federation for the Blind, the Phoenix Society for burn victims) and local support groups (e.g., hospital-based burn victims groups, spinal cord injury groups, surviving family members groups) that may be beneficial to accident victims and their family members. Group membership may help the patient by normalizing his or her response to the trauma and by providing a feeling of affiliation at a time when he or she feels estranged from

friends and families. Pragmatic advice on a range of postaccident concerns is also available through support groups. Most of the groups are free or at low cost to the patient.

For all types of trauma patients, certain factors may be associated with positive or negative outcomes. Although research in this area is also somewhat limited and often methodologically flawed, clinical experience would suggest the following. Factors associated with positive outcomes appear to be early intervention, a noncomplicated trauma history, a noncomplicated mental health and physical health history, less severe accident-related injury, good premorbid adjustment, and adequate social support. Factors associated with more negative outcomes may be late referral, complicated trauma history, complicated mental health and physical health history, severe accident-related injury, perceived life-threat, substance abuse, poor premorbid adjustment, and poor social support systems.

SPECIAL ISSUES

There are a few issues that appear to arise with sufficient frequency during the course of therapy with accident victims that the clinician may want to consider them early in the treatment process. These specific issues or factors are discussed below.

Perceived Life Threat

Perceived life threat has been shown to be a predictor of PTSD in rape victims (Kilpatrick et al., 1989) and in combat veterans (Foy, Resnick, Sipprell, & Carroll, 1987; Foy & Card, 1987; Grady, Woolfolk, & Budney, 1989; Jordan et al., 1991). It should be emphasized that perceived life threat may not necessarily include signs typically associated with increased danger, such as the use of a weapon during a rape, or the actual exposure to a toxic chemical during an explosion at a chemical factory, or the presence of high levels of radiation in a nuclear plant accident. Rather it is the victim's individual perception of danger that is important in determining posttrauma response. Clinically, the most efficacious way of determining perceived life threat is to ask the victim if he or she thought that they might be killed or seriously injured during the accident. There is no other accurate way to determine perceptions of life threat because it is a *subjective,* rather than an objective, assessment made by the *patient,* not by family members, therapists, employers, or witnesses to the accident. In the case of Thomas, although the auto accident was by all accounts very serious with several fatalities, at no time did he think that *he* was going to die. Robert, on the other hand, perceived a great deal of life threat when the plane crashed, killing his friend and severely burning him.

Assessing for perceived life threat is important for three reasons. First, for those victims who do report life threat, the clinician should be more alert to the

possibility of the development of PTSD. Second, the victim may not recognize the relationship between life threat and intensity of symptoms in light of the apparent "minor nature" of some traumas or accidents (e.g., no physical injury, no death). Therefore, the victim and others may impute their high level of distress to "weak character" or malingering rather than to their subjective assessment of danger. Third, victims' family members, their employers, even third-party payers for therapy, may not understand the concept of perceived life threat as it relates to the development of PTSD and think that the victim is "overresponding" to the trauma. If others hold such beliefs, they may have unrealistic expectations of the victim and may be unwilling to offer necessary emotional, social, or financial support to the victim.

Physical Injury

Research has shown that physical injury can also be a predictor of PTSD (Kilpatrick et al., 1989). Although many accident-related traumas do not result in actual physical injury, a significant number do, and for those patients, the development of PTSD may be more likely. When physical injury is combined with other predictors, such as perceived life threat, the risk of PTSD may increase even more. Although physical injury can occur as a result of a trauma without perceived life threat, more often than not, the two coincide. Therefore, the patient may experience more symptoms of PTSD and/or have more intense symptoms of the disorder when both physical injury and a perception of threat to life have occurred.

For accident victims, several factors may account for the increase in the likelihood for developing PTSD when injury has occurred. First, physical injuries serve as constant visual and proprioceptive cues for the "reexperiencing" (intrusive) Category B cluster of PTSD (APA, 1987, 1994). The sight of a missing limb, the disfigurement of face from a serious burn, the need for a wheelchair because of a spinal cord injury, or even phantom limb pain, serve as hourly or daily reminders of the trauma because of the loss of function, pain, or other injury-related factors. The victim has a difficult time making what might be an adaptive cognitive avoidance response, even for a few minutes of the day. To put it into lay terms, it appears that "there is no rest for the weary" when it comes to intrusive symptomatology for some accident victims. In addition, physical injury, which is usually accompanied by significant levels of pain, may lower the patient's overall ability to handle stress. Although a discussion of psychoimmunology is beyond the scope of this chapter, it is generally recognized that a mind–body connection exists. Changes in hormonal functioning following an extreme stress may be associated with varying levels of PTSD (Yehuda, Resnick, Kahana, & Giller, 1993).

Physical injury resulting from a trauma has another deleterious effect on patients in addition to causing pain and suffering and increasing the likelihood of PTSD. Physical injury may limit the patient's ability to return to work. If the patient is capable of returning to work, it is often in a different position, for a

reduced number of hours, or frequently interrupted for physical therapy or medical treatment appointments. Trauma patients who do return to work often report that they notice a decrease in their productivity. Combined with other possible productivity-reducing symptoms caused by PTSD, physical limitations of the job may result in the loss of employment. The loss of self-esteem that is often associated with loss of employment and the subsequent loss of financial resources may result in prolonged emotional strain and, in extreme instances, may result in a clinical depression. The connection between internal and external loss events and subsequent feeling of depression is consistent with the theoretical proposition that the loss of resources limits the individual capacity to adapt effectively (see Chapter 2, this volume; Hobfoll, 1989).

Physical injury may also markedly effect treatment interventions. For example, in the case example of Robert, who received burns as the result of the fire from the jet crash, many modifications were needed for teaching relaxation exercises. The tensing of muscles and the subsequent stretching of the affected overlying skin associated with deep muscle relaxation and deep breathing exercises would have been too harsh for the delicate condition of his skin. Therefore, these otherwise effective techniques had to be omitted. Helping Robert achieve a physiological relaxed state was achieved by the use of pleasant imagery.

Finally, the use of medications may be somewhat of a two-edged sword in treatment. It may offer the patient enough relief from physical pain or psychological symptoms so that he or she may be able to attend to, and process, the more cognitive components of therapy. On the other hand, heavy doses of some medicines may impair the patient's ability to comprehend and store verbally presented information. Use of medication may also make it more difficult to accurately assess trauma-related symptomatology and progress in therapy. The appropriate use of medication is an issue that should be carefully considered. The patient and relevant treatment professionals should collaborate in making appropriate decisions regarding medications. Kudler and Davidson (Chapter 4, this volume) provide informative comments regarding the integration of medication and psychosocial forms of treatment in treating trauma victims.

Immediate versus Long-Term Reactions

Clinicians may come into contact with accident victims immediately following the trauma (within a few days or weeks), or they may be asked to provide services to victims long after the accident (months or years later). Because victims may present quite differently depending on the acuteness or chronicity of the symptomatology, some discussion is in order.

Clinicians who work on a consultation/liaison service, an in-patient unit, or who are affiliated with emergency services (i.e., emergency medical services, law enforcement agencies, or trauma response teams), frequently see patients who are experiencing acute reactions. Although there may be wide variability

in the clinical picture, these patients may be experiencing high levels of anxiety and fear, including symptoms associated with increased arousal (e.g., hypervigilance, exaggerated startle response, or sleep disturbances). They may describe vivid intrusive images, sounds, or smells related to the accident, or report feelings indicative of psychological numbing.

In other clinical settings, clinicians typically treat patients months to years after the accident. Patients with more long-term reactions may have developed both cognitive and behavioral avoidance patterns. Additionally, they may have distressing dreams or flashbacks of the accident. As growing awareness of the aftereffects of the trauma set in (possible loss of employment, loss of a body part due to injury, loss of a friend or co-worker who may have been killed during the accident), symptoms of depression may surface. Differences in symptom pictures dictate differences in the content, emphasis, and the course of treatment.

The Role of the Therapist as an Advocate

Patient advocacy is a topic typically not covered in professional school curricula or clinical practice. This is understandable in that most patients who access the mental health system are not in need of an advocate. However, trauma patients, especially accident victims, may be an exception. Why do accident victims need advocates? Accidents can be, and often are, physically and psychologically overwhelming. Consequently, the patients' usual effective coping mechanisms may be ineffective at the very time they need to function well to deal with increased demands. Accident victims may be required to interact with a multitude of agencies ranging from insurance companies, to employers, the medical community, mental health professionals, in addition to well-meaning, but possibly misguided family and friends. Because of all this, the patient may need assistance in dealing with others after the accident. For example, the patient may find it beneficial to have the clinician educate employers about PTSD symptomatology and the need to follow a gradual exposure model in order for the worker to return to the workplace or even to consider a temporary change in employment responsibilities. Or the clinician may need to speak on behalf of the patient to insurance carriers or employers explaining the rationale for, and the benefits of, a cognitive–behavioral framework for therapy. Otherwise, these groups may be hesitant to approve, or cooperate with, mental health therapies. Finally, for the victims who become involved in civil or criminal proceedings resulting from the accident, some advocacy may be extremely beneficial for providing information and assisting the patient throughout the process.

All of the above advocacy situations applied to Thomas (auto accident victim). He needed assistance in working with his employer who was initially somewhat nonsupportive, to temporarily change his job responsibilities because of his difficulties concentrating and his level of anxiety. The nature of his employment was quite important, since he worked for an agency involved in

matters of national security. Thomas also needed accurate information regarding the workings of the legal system related to civil litigation.

SUMMARY

This chapter has attempted to make the reader aware of several clinical issues regarding the assessment and treatment of accident victims. It is suggested that a comprehensive assessment begin with an unstructured description of the accident, and be followed by a trauma history assessment, structured interviews, and possibly psychophysiological measures. A cognitive–behavioral, tripartite model for the treatment of accident-related PTSD was offered. Techniques to address the symptoms of anxiety manifested in the physical, cognitive, and behavioral channels were described, as were the course of therapy, length of therapy, and factors associated with positive outcomes. The chapter concluded with a section on special issues related to the treatment of accident-related trauma.

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